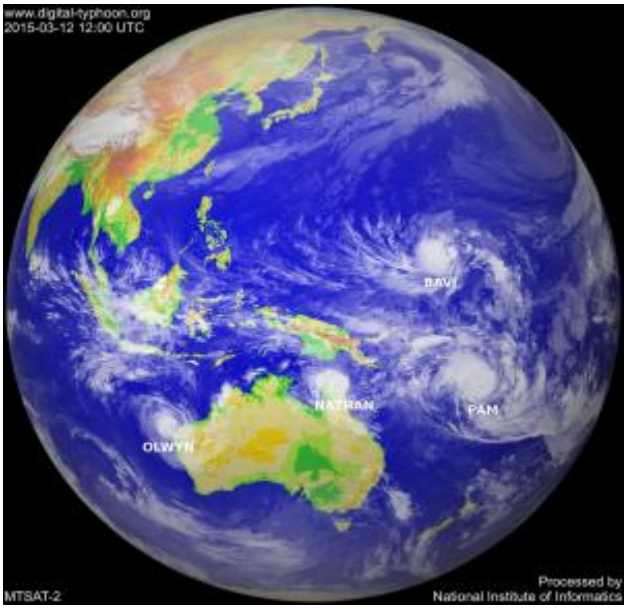
Cyclone Quartet in the Tropics

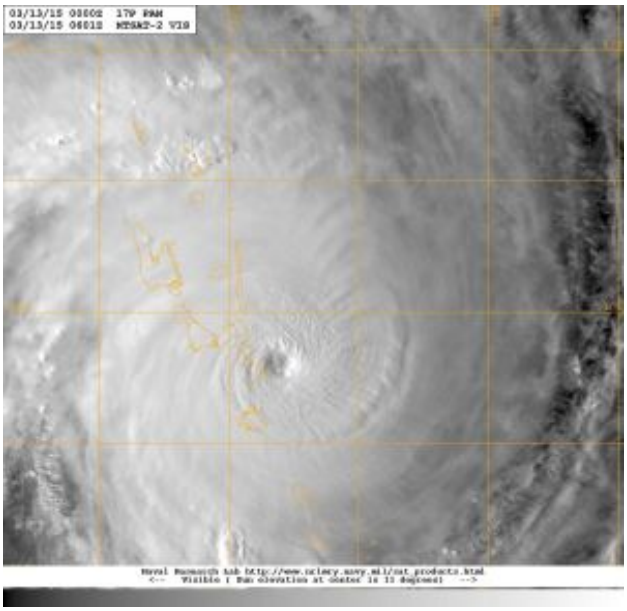
Description

There are currently four cyclones active across tropical regions of the Pacific and Indian Oceans. Here we take a look at each storm and its impacts.



Four cyclones seen on 12 March 2015. Image courtesy of The National Institute of Informatics

Cyclone Pam is the most intense of the four cyclones and, at the time of writing on March 13, is making landfall over the Republic of Vanuatu in the South Pacific Ocean as one of the most intense southern hemisphere cyclones on record. Sustained winds are estimated to be near 170 mph with a central pressure of 900 mb. Port Vila, the capital of Vanuatu, is located on the island of Efate and here preparations for the cyclone have been rushed to completion and residents of the city with a population of 45,000 have taken cover as the cyclone approaches. The eye of the cyclone is expected to pass just to the east, if not directly over the city.



Cyclone Pam seen on 13 March 2015
Image courtesy of The US Naval Research Laboratory

Australia was struck by two cyclones simultaneously in February (Marcia and Lam) and this week is dealing with another dual threat. Cyclone Olwyn came ashore yesterday (12 March) in Western Australia near the town of Exmouth with wind gusts of 112 mph recorded at Learmonth Airport and a 1.75 m storm surge. Olwyn is tracking parallel to the coast and so is continuing to bring strong winds and heavy rain to a large stretch of the coast of Western Australia.

Meanwhile in northern Queensland Tropical Storm Nathan has made a very close approach to the coast bringing over 200mm rain in places in 24 hours. However, the centre of the storm has stayed off shore and is predicted to move back out to sea so minimising the threat of this storm to populated areas.

Tropical cyclones in the northern hemisphere are not frequent at this time of year, but in the North Pacific Tropical Storm Bavi has formed and is slowly gathering strength. The storm is well away from any large land masses, but by the end of the weekend could pass close to the US island territory of Guam.

Official warnings for these cyclones are produced by the Fiji Meteorological Service, the Australian Bureau of Meteorology and the Japan Meteorological Agency. The Met Office routinely supplies predictions of cyclone tracks from its global forecast model to regional meteorological centres worldwide, which are used along with guidance from other models in the production of forecasts and guidance. We also provide updates on current tropical storms via @metofficestorms on Twitter.

Date Created
March 2015

The Met Office in Japan for the 3rd World Conference on Disaster Risk Reduction

Description

The Met Office is sharing its knowledge and expertise in Japan this week at the 3rd World Conference on Disaster Risk Reduction.

Disaster Risk Reduction (DRR) aims to reduce the damage caused by natural hazards such as flooding, droughts, earthquakes and cyclones. Effective weather and climate services, like we have in the UK, play an essential role in ensuring that a nation is prepared for weather related natural hazards and help to reduce risk to life and property.

We are an integral part of UK Government and play a key role in the UK's DRR planning, preparedness, response and recovery. Our accurate and timely weather forecasts, severe weather warnings and climate information mean authorities, businesses, civil contingency community and the public can take action ahead of severe weather. This helps to protect life and property and critical national infrastructure from the impacts of weather related natural hazards.

But the Met Office does not only work in the UK, we also work closely with a number of national meteorological and hydrological services (NMHSs) around the world, supporting them to develop their weather and climate services. If governments and communities are better informed they can take steps to prepare for the impacts.

We supported the Philippines National Met Service – the Philippine Atmospheric, Geophysical and Astronomical Service Administration (PAGASA) – in improving their weather information services following Typhoon Haiyan, which killed more than 6,300 people, in November 2014. In contrast more than a million people were evacuated ahead of Typhoon Hagupit, just one year later. Whilst sadly 30 people still died, many lives were undoubtedly saved as a result of improved forecasts, communication and DRR initiatives. This has transformed how the Philippines react to disasters.

Finally, as the UK's national weather service we understand the importance of a nation having a single responsible voice for DRR, as it helps to ensure that early warning systems are trusted, listened to and acted upon by the public**.** With this in mind, we are well placed to support other NMHSs role in disaster risk reduction in their own countries.

Date Created
March 2015

Air Quality Forecast

Description

Localised areas of Greater London are currently recording Moderate to High levels of air pollution. More widely across Eastern parts of the UK, Moderate levels of pollution are also being recorded. Due to the current weather conditions these levels are likely to remain Moderate to High in certain areas for the next 24 hours.

Although these conditions are going to be short-lived, and while the great majority of people will not be affected by short-term peaks in air pollution, some individuals, such as those with existing heart or lung conditions, may experience increased symptoms. Those vulnerable members of the public can find further information on health advice here.

The Met Office is working very closely with Defra and Public Health England to ensure they have the most up-to-date and accurate air quality forecasts in order to provide relevant advice to the public.

Current Weather Conditions

Throughout today and into tomorrow high pressure will continue to draw in air and pollutants from the continent which adds to the pollution building up in urban areas.

High pressure is also currently sitting to the East of the UK bringing us calm and settled weather allowing pollutants to become trapped close to the ground.

How long will it last?

From tomorrow morning the high pressure will move westwards across the UK and start to bring cleaner air from the North and North East Europe, which will start to disperse pollution. By the end of Thursday pollution levels across the UK should return to Low values.

Date Created
March 2015

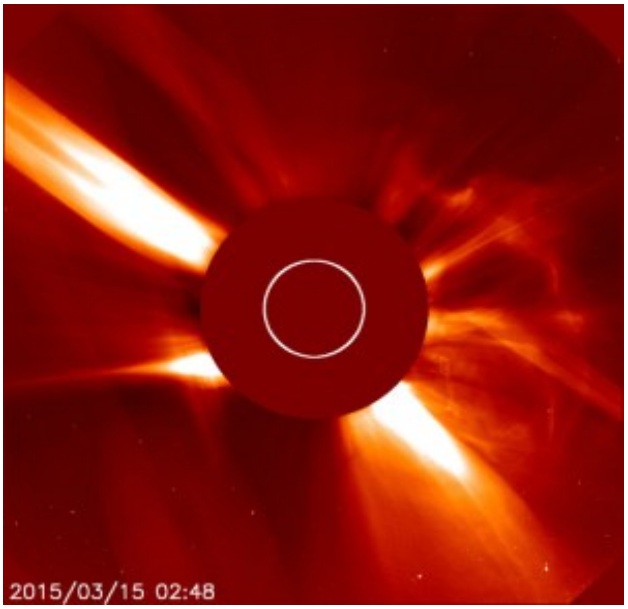
Northern Lights reach the UK

Description

Anyone in the Midlands, and further north, might have a chance of catching sight of the northern lights tonight.

Occasionally there are large explosions on the Sun and huge amounts of magnetically charged particles are thrown out into space, this is called a Coronal Mass Ejection (CME). If these particles travel towards Earth they interact with the Earth's magnetic field and increase global geomagnetic activity. The increased activity releases energy into the atmosphere giving off light in the process, which we call the Northern Lights or the *aurora borealis*.

A CME left the sun on Sunday 15 March, arriving at Earth in the early hours of this morning (Tues). As the day has gone on the Earth's magnetic field has become more disturbed with the disturbance reaching a level of G4 on the 0 to 5 NOAA geomagnetic space weather scales.



CME leaving the sun on 15th March 2015
picture courtesy of NASA

As a result of this activity the aurora is visible in those parts of the globe currently in darkness. As the UK becomes dark tonight there is an increased chance of the aurora being visible as far south as the Midlands. However due to the extensive cloud cover in Eastern areas, the best chance of clear skies is to the west of high ground. Check cloud cover in your area via our dedicated pages.

Areas such as the Northern tip of Northern Ireland, the Western Isles and parts of North Wales probably stand the best chance of seeing the aurora. See the British Geological Survey web pages on

tips to see the aurora.

Date Created
March 2015

Northern Lights continue for the UK

Description

There could be another chance to see the Northern Lights tonight (18 March) in the UK, but we are not expecting sightings to be as widespread as last night.

The lights are the result of the biggest solar storm in 11 years. There were reports of sightings as far east as Norfolk and as far south as Somerset.

Elsewhere areas of Canada reported power outages affecting their electricity grid and satellite operators took mitigating action to protect satellites from the effects of the solar storm.

The storm was caused by a large explosion on the Sun on Sunday throwing huge amounts of magnetically charged particles into space, called a Coronal Mass Ejection (CME).

As the particles travel towards Earth they interact with the Earth's magnetic field and increase global geomagnetic activity, which releases energy into the atmosphere giving off light in the process.

Called the Northern Lights or the *aurora borealis*, the light is visible in parts of the globe in darkness. The Northern Lights get stronger and more colourful the further north you are.

The CME arrived at Earth in the early hours of Tuesday morning with the disturbance reaching a level of G4 on the 0 to 5 NOAA geomagnetic space weather scales last night.

There is a chance the *aurora borealis* will be visible again tonight but mainly in Scotland and Northern Ireland depending on cloud cover. Check cloud cover in your area via our dedicated pages. See the British Geological Survey web pages for tips on how best to see the aurora.

Below are some of the pictures you shared on Twitter

> My 1st shot of #AuroraBorealis tonight. The skies were alive! @StormHour @aurorawatchuk pic.twitter.com/zi1ONQvlgs
>
> — Magz Macleod (@MaggieMacleod) March 18, 2015

> My #Aurora pics from #Ullswater in Lake District last night. #AuroraBorealis #NorthernLights @VirtualAstro pic.twitter.com/NFg2Larq9c
>
> — Chris Ratcliffe (@CRatcliffeNNP) March 18, 2015

> Last night’s aurora at Old Man of Storr on Skye. #brilliantmoments @VisitScotland @VisitScotNews #AuroraBorealis pic.twitter.com/A6RbaGzBew
>
> — DRW Photography (@DRWPhotography1) March 18, 2015

Date Created
March 2015

Air quality issues in the UK – what's really going on?

Description

There has been some media coverage about air pollution issues in the UK today, so what's really going on?

It is true to say that since Tuesday this week the UK has seen elevated levels of air pollution. This is mainly due to high pressure dominating over the country, which means a lack of wind and atmospheric circulation which would normally disperse pollution.

This allows pollution from things like cars and industry to build up in the lower atmosphere, affecting our air quality. This means much of the pollution we are seeing is due to home-grown sources, but with some contribution of pollution from the continent.

As you can see from the current air quality forecast on Defra's air quality pages, whilst most areas of the country are seeing moderate or low levels of pollutants today, some areas are seeing high levels.

The situation is improving, however, with air quality levels expected to return to a normal level over the next couple of days.

Levels we have seen over the past few days and today are by no means unusual – we expect to see conditions similar to this several times a year.

The air pollution is also nowhere near record levels – in fact, we saw higher levels than this during a period of poor air quality at about the same time last year.

It's also worth noting that the current air quality issues don't fit any scientific definition of smog – which is a term which describes a mixture of smoke and fog.

There's no fog around at the moment and smoke would only be a tiny fraction of any contribution to the poorer air quality we're currently seeing.

The main effects of the current conditions will be felt by individuals with existing heart or respiratory conditions, who may experience increased symptoms. More health advice is available online on Defra's air quality pages.

Throughout the next couple of days, the Met Office will continue to work closely with Defra, Public Health England and Public Health Wales to ensure they have the most up-to-date and accurate air quality forecasts in order to provide relevant advice to the public.

Date Created
March 2015

Partial eclipse of the sun

Description

Friday morning will see a partial eclipse of the sun over the UK. So what does the weather have in store?

Friday Weather

There is expected to be a lot of cloud around for Friday morning. There may be some clearer spells across central England, Wales and the south west England, with a chance of some breaks in the cloud either side of this.

It looks like Southern England, Northern England, Northern Ireland and Scotland will have cloud and this will be thicker the further north you go.

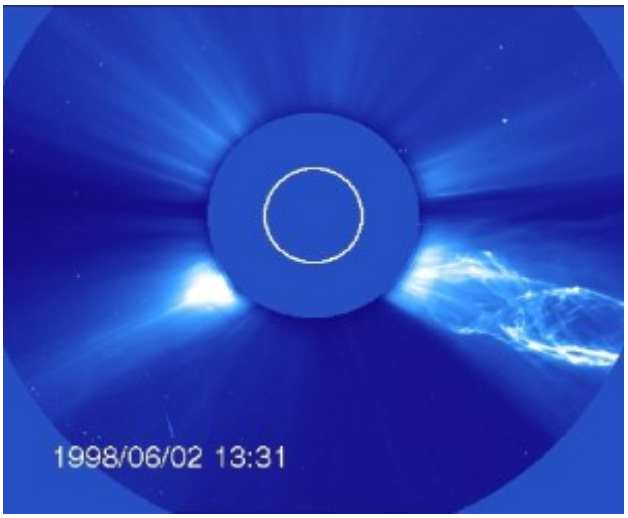
Check out the expected cloud cover in your area on our cloud map.

If you're interested in seeing the eclipse, it's worth heading out to take a look regardless of the weather. If it's cloudy it'll still get noticeably darker as the moon passes in front of the sun, and you may just get a better look if the cloud thins or a small break in the clouds appears at the right time – but do remember to use appropriate viewing equipment.

Will the Eclipse affect Space Weather?

Earlier in the week we saw the biggest solar storm in 11 years which led to sightings of the Northern Lights, or *aurora borealis*, as far south as Somerset. The solar storm was caused by a large explosion on the Sun on Sunday (15 March) throwing huge amounts of the Sun's atmosphere into space. This mass of atmosphere carries with it part of the Sun's magnetic field and is called a Coronal Mass Ejection (CME).

The eclipse won't have an impact on the space weather we experience, however it will give scientists an opportunity to study the corona of the Sun in more detail. The detail within the corona is only visible when the extremely bright light from the Sun is obscured during an eclipse. A number of instruments used for monitoring the Sun for space weather forecasting, such as the LASCO instrument on the SOHO satellite, produce an artificial eclipse by placing an obscurer in front of the solar disc. This produces images like the one below showing a 'streamer' to the left of the Sun and a twisted magnetic structure within a coronal mass ejection on the right.



Picture courtesy of NASA

In the image, the position of the Sun is indicated by the white circle, with a larger obscurer blocking out the bright light from the Sun exposing the finer and fainter structures.

Date Created
March 2015

What did the solar eclipse look like from space?

Description

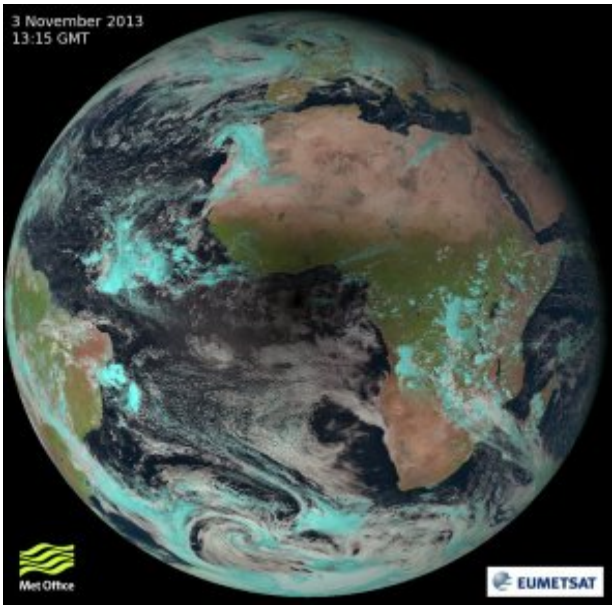
If you were lucky enough to see the solar eclipse this morning, you will have experienced a moment of darkness as the Moon temporarily blocked the Sun's light from reaching the Earth.

You will have been briefly standing in the Moon's shadow as it travelled over the surface of the Earth. The shadow moved over the Atlantic Ocean towards the UK, before passing to the north of Scotland and on towards Svalbard, over a period of approximately 4 hours.

During the hours of daylight this shadow was visible from space, and EUMETSAT's geostationary imaging satellite, Meteosat-10, was perfectly placed to observe it.

Sitting at 0 degrees longitude (the same as Greenwich, London), approximately 35,000km above the Earth, the satellite captures the Sun's light that is reflected back into space from the Earth's atmosphere and surface.

It does this using the visible channels of its imaging instrument, SEVIRI. During an eclipse the Moon blocks the path of the Sun's light rays, leading to an absence of reflected light from the affected part of the Earth. Hence, the SEVIRI imagery observes an anonymously dark patch: the Moon's shadow.



A SEVIRI image captured during the solar eclipse on 3rd November 2013. The Moon's shadow is centred over the ocean to the south of West Africa.

How noticeable this dark patch is in the SEVIRI imagery is determined by the atmospheric conditions. Regions of cloud exhibit high albedo (the degree to which light is reflected), and consequently they

reflect a great deal of light. The Moon's shadow will therefore be most noticeable when it passes over cloudy areas.

Land surfaces have a lower albedo, but the reduction in reflected light will still be noticeable to SEVIRI. The ocean surface has the lowest albedo, reflecting only 6% of the Sun's light. Accordingly, in oceanic regions with clear skies the Moon's shadow may not be very clear in the satellite imagery.

A SEVIRI image captured during the solar eclipse that occurred on 3rd November 2013 can be seen in the picture on the left, above. At 13:15 GMT the Moon's shadow was centred over the ocean to the south of West Africa.

The reduction in the brightness of clouds in the region is the most obvious impact of this. The centre of the shadow indicates the region of total eclipse. Moving away from this area the shadow fades, indicating regions that experienced only a partial eclipse.

While cloud cover in some parts of the UK meant that many saw only glimpses of the eclipse, or nothing at all, those same clouds provided a good opportunity to capture some images of the shadow from space.

You can see a loop of imagery from this morning's eclipse below.

Date Created
March 2015

The Met Office Pollen Forecast goes live

Description

Different types of pollen, released at varying times throughout the year, cause millions to suffer from hay fever and other allergies and these symptoms can have a serious impact on well-being. The Met Office counts pollen from March to August, however, pollen can be in the air much earlier – from January right through to November.

The pollen season has three main pollen type phases :

1. Tree pollen – late March to mid-May.
2. Grass pollen – mid-May to July.
3. Weed pollen – end of June to September

Our pollen calendar has a detailed breakdown of the different types of pollen and their peak times within a season. We manage the only pollen count monitoring network in the UK using information from our network, our weather data and expertise from organisations such as the National Pollen and Aerobiological Unit and PollenUK to produce forecasts that help support allergy and hay fever sufferers through the most difficult time of the year.

There are millions of hay fever sufferers across the UK, and the Met Office forecasts provide vital information to help reduce the impact pollen has on their health. At this time of year, tree pollen is more prevalent with grass and weed pollens becoming more prevalent from mid May onwards.

Yolanda Clewlow said: “The best way to manage your condition, if you suffer from hayfever, is to keep an eye on the Met Office pollen forecasts to help you understand the best time to take appropriate medication and avoid exposure to pollen.”

We provide free, public pollen forecasts to all of the UK.

Pollen Diary

As part of an important Europe-wide study, hay fever sufferers are recording their symptoms online through the European Aeroallergen Network (EAN) Patient’s Hay fever Diary.

Document your symptoms and compare them with concentrations of pollen in the air, to help identify which pollen you are allergic to, look back at pollen levels from previous seasons and read the latest pollen news. This is a long-term study that will significantly aid research into pollen and hay fever.

Sign up to the pollen diary.

Pollen Maps

Together with Public Health England we have produced species location maps for the south west of key allergenic plant species (Cornwall, Devon, Somerset). The maps show the locations of six different tree and plant species – grass, alder, ash, birch, oak and pine – key allergenic plants for asthma and hayfever.

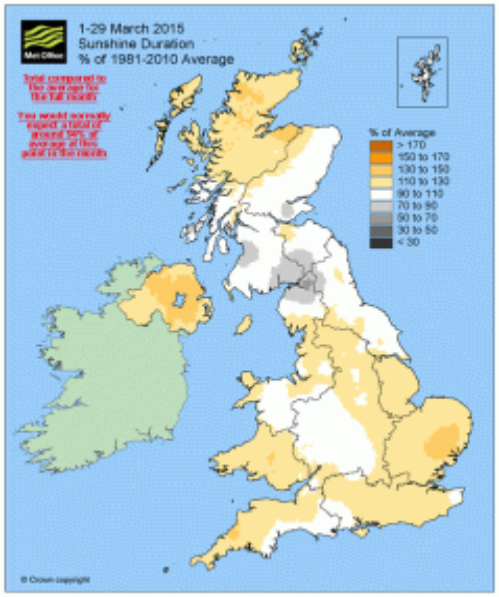
The pollen forecasts are part of a range of weather-related services offered by the Met Office, which include UV index, Heat Health watch and data supporting the UK air quality forecasts.

Date Created
March 2015

March continues sunny theme for UK

Description

Following the sunniest winter in records dating back to 1929, March has continued the trend with above average sunshine hours according to early Met Office statistics.



Map showing sunshine hours between 1-29 March compared to the full-month long-term average.

Up to the 29th of the month, there had been 115.0 hours of sunshine which is slightly above the full-month long-term (1981-2010) average of 101.8 hours.

Northern Ireland has been particularly sunny compared to average, with 126.9 hours of sunshine so far this month – which is well ahead of its long-term March average of 97.7 hours.

It has also been a slightly drier than average month up to the 29th, with 80.4mm of rain for the UK so far making up about 85% of the long-term average for the whole month (95.1mm). We'd expect to have had about 94% of the full-month average by this stage of the month.

England has been particularly dry, with the 39.4mm notching up just 62% of the full month average (64.0mm).

Wales and Northern Ireland were also fairly dry (notching up 74% and 78% of their full month average respectively), whereas Scotland is slightly wetter than average – having seen 148.2mm of rain which is just over the full-month average.

When it comes to temperatures – the month has been spot-on average up to the 29th, with a mean temperature of 5.5C.

Looking closer at individual countries, England, Wales and Northern Ireland were all slightly colder than average (by no more than a few tenths of a degree), while Scotland again bucked the trend with slightly above average temperatures (by 0.3C).

Overall the month has been fairly average so far, with no records broken. The final figures are likely to change slightly once the final two days of the month are added.

You can explore Met Office statistics on our UK Climate pages.

UK statistics for 1-29 March:

	Mean Temperature		**Sunshine hours**		**Rainfall**	
1-29 March	**Actual**	**Diff to Avg**	**Actual**	**% of Avg**	**Actual**	**% of Avg**
	degC	**degC**	**hours**	**%**	**mm**	**%**
UK	5.5	0.0	115.0	113	80.4	85
England	6.1	-0.1	122.0	113	39.4	62
Wales	5.4	-0.4	118.7	117	86.1	74
Scotland	4.4	0.3	100.2	108	148.2	105
N Ireland	5.6	-0.2	126.9	130	74.3	78

Date Created
March 2015